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1 of 6

No.:

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 **University Of Bahrain**  
**College of Information Technology**



**2<sup>nd</sup> Exam**  
**May, 2007**

Subject: Computer Networks IICE314

Lecturer: Prof. H. Al-Rawi

Note:

1. Answer ALL Questions
2. Time: 1:00 Hour.
3. Use pen or ball pen only.

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**Q1. Multiple Choices: Circle the right choice.**

(7 marks)

DNS is also being used to perform \_\_\_\_\_ among replicated servers, such as replicated Web servers. Busy sites, such as cnn.com, are replicated over multiple servers, with each server running on a different end system, and having a different IP address

- A) Web resolution
- B) DNS authentication
- C) Name assignment
- ☒ D) Load distribution

Bob's email address might be as simple as bob@hotmail.com. However, the hostname of the Hotmail mail server is more complicated and much less mnemonic than simply hotmail.com (e.g., the \_\_\_\_\_ hostname might be something like relay1.west-coast.hotmail.com).

- A) Mail address
- B) Mail server alias
- ☒ C) Canonical
- D) Alias

Every host is registered with \_\_\_\_\_ name server.

- ☒ A) An authoritative
- B) A TLD
- C) A root
- D) A secondary

The name servers that together implement the DNS distributed database, store \_\_\_\_\_ for the hostname to IP address mappings

- A) Names
- B) IRR
- ☒ C) RR
- D) DNSR

\_\_\_\_\_ defines how Web clients request Web pages from servers and how servers transfer Web pages to clients.

- A) ~~html~~
- ☒ B) ~~http~~
- C) Browser
- D) IMAP

An HTTP request message is a so-called conditional \_\_\_\_\_ message if (i) the request message uses the \_\_\_\_\_ method and (ii) the request message includes an If-Modified-Since:header line.

- A) PUT
- B) ~~LET~~
- ☒ C) ~~GET~~
- D) POST

Networking applications have \_\_\_\_\_ that define the format and order of the messages exchanged between processes, as well as the actions taken on the transmission or receipt of a message.

- A) Server application
- B) User agent
- ☒ C) ~~Application layer protocols~~
- D) Client and server sides

The Web application consists of many components, including a standard for document formats (i.e., HTML), Web browsers (e.g., Netscape Navigator and Internet Explorer), Web servers (e.g., Apache, Microsoft and Netscape servers), and \_\_\_\_\_.

- A) ~~A reliable channel~~
- ☒ B) ~~An application-layer protocol~~
- C) A DNS server
- D) A datagram network

The \_\_\_\_\_ is an interface between the user and the network application.

- A) ~~TLD~~
- B) ~~Client and server sides~~
- C) ~~Application layer protocol~~
- ☒ D) ~~User agent~~

Applications, such as electronic mail, file transfer, remote host access, Web document transfers, and financial applications \_\_\_\_\_.

- A) Are bandwidth sensitive applications.
- B) Are loss tolerant applications.
- ☒ C) Accept no errors
- D) Are time sensitive applications



Real time applications

- A) Are bandwidth sensitive applications.
- ☒ B) Are loss tolerant applications.
- C) Accept no errors
- D) Can not be network applications



TCP \_\_\_\_\_ a minimum transmission rate

- A) Guarantees
- ☒ B) Does not guarantee
- C) Provides
- D) Streams bytes in



In a *proprietary* client server application the client and server programs \_\_\_\_\_ existing RFC

- A) Need to conform to an.
- B) Must not Conform to an
- ☒ C) Do not necessarily conform to any
- D) Must conform to any



A protocol uses \_\_\_\_\_ if the two communicating entities first exchange control packets before sending data to each other.

- ☒ A) Out of band
- B) Handshaking
- C) In-band
- D) UDP



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Q2.

(a) Mention functions of four of the flags of the DNS message header. Mention for each flag which one is responsible for setting/resetting the flag.

( 2 marks )

(b) Sending and receiving emails is possible through many ways. List all possible application layer protocols required in each of the following cases. State for each case transport layer protocol required if any.

1. Sending an email using email client.
2. A server delivering an email to another mail server
3. Receiving an email using email client.
4. Sending an email using web-based email.
5. Reading an email using a web-based email.
6. A server receiving an email from another mail-server

( 3 marks )

(c) How to solve the bootstrap problem in Gnutella network

( 1 marks )



Q3. Consider the institutional network shown in the figure below. Average object size is 100kbits. Average request rate is 12.5 requests per second. Assume that the internet delay time -from the router on the internet side of the access link- is 2 seconds. Hit rate is 0.6. Find:

a. When cash is installed:

- i. Average delay of requests served from the internet
- ii. Average delay of requests served by the proxy server
- iii. Utilization on access link
- iv. Utilization on bus (network link)

( 4 marks )

b. When cash is not installed.

- i. Average request delay = LAN delay + Access delay + Internet delay
- ii. Utilization on access link
- iii. Is institutional router congested (show mathematically).

( 3 marks )

